



**DE Statistics
STAT C1000
Fall Semester 2025**

**Granite Bay HS
(room 650)**

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Period 1: M-F 8:30am-9:59am

Period 2: M-F 10:07am-11:36am

Course Description

This course serves as an introduction to the basic concepts of statistics, with an emphasis on statistical reasoning and application of statistical methods. Areas studied include: graphical and numerical methods of descriptive statistics; basic elements of probability and sampling; binomial, normal, and t distributions; confidence intervals and hypothesis testing for one and two population means and proportions; chi-square test for goodness-of-fit and independence; linear regression and correlation; and one-way analysis of variance (ANOVA).

Prerequisite

Completion of Integrated Math 3 with a grade of "C" or better.

Outcomes

Upon successful completion of the course, a student should be able to:

- Recognize, label, and identify data by type and level of measurement.
- Construct and interpret data using graphical and numerical methods of descriptive statistics.
- Solve, calculate, and interpret problems involving basic elements of probability and sampling.
- Conduct hypothesis tests and construct confidence interval estimates for population means and proportions; chi-square tests for goodness-of-fit and independence; linear regression and correlation; and one-way analysis of variance (ANOVA).
- Logically present clear, complete, and sufficiently detailed solutions to demonstrate understanding and communicate reasoning of statistical methods using technology when appropriate.

Materials Needed

- ☐ Stats-Modeling the World, by Bock, Velleman & De Veaux. Copyright 2015 by Pearson.
- ☐ 3 ring binder with dividers (for organization)
- ☐ Chromebook for statistical applets and digital assignments
- ☐ scientific calculator

Academic Integrity

School policy will be followed in instances of student violations of the academic integrity policy. Violations include; copying work (homework, classwork, quizzes, tests), collusion (supporting malpractice by another student), and misconduct during an examination. Any infraction is recorded in student records and student may lose credit or be asked to redo the assignment or complete an alternate assignment.

Student Responsibilities

- Participate! Mathematics learning is all about communicating, practicing, questioning, and more.
- Be respectful! [Students Rights and Responsibilities Handbook](#)
- Be organized!

Title IX

- As an instructor, one of my responsibilities is to create a safe learning environment for my students and for the campus as a whole.
- So that the college can provide students with appropriate services and assistance, I am required to share with the College's Title IX Coordinator any instances of sexual harassment, sexual violence, and/or other forms of prohibited discrimination.
- If you would rather share information about sexual harassment, sexual violence, or discrimination to a confidential employee who does not have this required responsibility, call a campus advocate at (916) 660-8400. Campus advocates are available at each college campus and provide confidential counseling, crisis intervention and connection to campus and community resources

Special Accommodations (ADA) Statement

In accordance with the Americans with Disabilities Act requirements, Sierra College can accommodate most special needs. Students with a documented physical or learning disability may request accommodations by contacting the Student Accessibility Services (SAS).

Attendance Requirements

Attendance Is Mandatory! I expect each student to be fully prepared to participate in each class session. If your name appears on the roster as being enrolled in this course, it is your responsibility to follow the proper procedures, in a timely manner, if you decide to withdraw.

Technology Use in Class

Students will use technology in the classroom and be held to standards of behavior and usage as set forth by the RJUHSD Technology Acceptable Use Agreement. Chromebooks are expected to be in class daily.

Course Topics

Topic		BVD Textbook Chapter
Quarter 1	Unit 1 - Exploring One-Variable Data	Exploring Quantitative and Categorical Data
	Unit 2 - Exploring Two-Variable Data	Linear Regression
	Unit 3 - Planning a Study	Surveys and Experimental Design
	Unit 4 - Probability	(A) Probability Models and Rules (B) Discrete Random Variables + Probability Distributions
Quarter 2	Unit 5 - Inference for Proportions	(A) Confidence Intervals and Hypothesis Tests for One Proportion (B) Making Errors and Power, Inference for Two-Proportions
	Unit 6 - Inference for Means	Confidence Intervals and Hypothesis Tests for One/Two Means
	Unit 7 - Inference for Multi-variables	Inference for Chi-Squared, Slope, and ANOVA
	Final Exam	Cumulative Project + Exam covering all topics

Grades

Students' grades will represent his/her knowledge on skill topics outlined below. There will only be ONE 10 credit grade earned for this course. While students will earn Sierra College credit for STAT C1000, grade bumps are also given for this class. **Letter grades will be assigned based on the following percentages:**

- A: 89.5-100%
- B: 79.5-89.4%
- C: 69.5-79.4%
- D: 59.5-69.4%
- F: less than 59.5%

	Grade %
Coursework	15%
Unit Quizzes	15%
Unit Exams	55%
Final Exam	15%

Coursework

It is our goal during this course for students to become mathematicians and expert learners. Pear Assessment (online) work and classwork will provide students with practice in each skill throughout the course.

- Practice is a very important practice to learning. Practice not only provides reinforcement, but also builds self-discipline.
- **Classwork** will be given each unit to practice skills needed to master each concept. Classwork will be graded on completion and is due within two school days.
- It is a student's responsibility to make-up absent work. All assignments are posted in Sierra College Canvas.
- **Pear Assessment** will be scored as an average grade for the unit. Each assignment is 10 points. All problems can be reworked for multiple attempts thus every student can earn 100%. Assignments for the week are due the following Monday by midnight.

Unit Quizzes

- Unit Quizzes are formative assessments to help prepare you for exams and will be given 2-3 times per unit (10 points each).
- There are no retakes on quizzes. However, Unit Exam scores can replace quiz scores for the unit.
- In addition to quizzes, group tasks will be assigned to each unit and will be graded as a 10 point quiz. These tasks are developed to extend to student thinking on various unit topics.

Unit Exams

- Unit Exams will be given using multiple choice and free response prompts. There will be 1-2 unit exams per unit topic above (50-100 points each).
- There are no retakes on tests.

Final Exam

- The Final Exam is a cumulative exam that will cover all topics in the course.

Get Help!

If you are absent for any reason, please use the following resources to help:

- Course website: <https://sites.google.com/rjuhsd.us/gbhsmath/home>
- Use video lessons and course calendar for assignments and lessons.
- Come before or after school to make-up quizzes and tests.
- Come before or after school to get help from Mrs. Kunst and other classmates.
- Form a study group to contact when absent or in need of help!

Sierra College offers Statistics Tutoring at the Statistics and Algebra Support Center (V-208), an on-ground tutoring center at the college. You will also have access to Tutor.com which is a 24/7 online tutoring center accessible through your Sierra College Canvas course. More information will be provided.

Course Plan

The primary textbook will be Stats: Modeling the world by Bock, Velleman, and De Veaux (BVD)

Introduction

BVD Chapters: 1-2

Time Frame: 1-2 days

Topics Covered:

- What is Statistics and why do we care?
- What is data?

Unit I: Exploring and Understanding Data

BVD Chapters: 3-6

Time Frame: 10-11 days

Topics covered:

- Describing and displaying categorical data
- Introductory discussion of independence
- Describing and displaying quantitative data
- Summary statistics for quantitative data
- Outliers
- The normal distribution
- The effect of linear transformations to data sets on summary statistics
 - o To include but not limited to: boxplots, dotplots, stem plots, back-to-back stem plots, histograms, frequency plots, and parallel boxplots.

Unit II: Linear Regression

BVD Chapters: 7-10

Time Frame: 7-8 days

Topics covered:

- Displaying and describing scatterplots
- Analyzing two-variable quantitative data:
 - o Correlation and the coefficient of determination
 - o Least-squares regression
 - o Slope and y-intercept
 - o Residuals and residual plots
 - o Outliers and influential points
- Transformations to achieve linearity

Unit III: Collecting Data (sampling and experimentation)

BVD Chapters: 11-13

Time Frame: 6-7 days

Topics covered:

- Designing surveys via various methods
- Bias in surveys
- Randomization and representative samples
- Experimental design:
 - o Control
 - o Random assignment of treatment
 - o Replication
 - o Placebo & blinding
 - o Blocking and matched pairs
 - o Confounding and lurking variables
 - o Statistically significant difference (introduction)
- Observational studies

Unit IV: Probability

BVD Chapters: 14-17

Time Frame: 15-16 days

Topics covered:

- Basic probability principles including complement, independence and mutually exclusive
- Simulating probability scenarios
- Addition, multiplication and conditional probability rules
- Random variables:
 - o Expected value and standard deviation
 - o Rules for transforming and combining random variables
- Binomial and geometric distributions
- Sampling distributions for means and proportions

Unit V: Inference for Proportions

BVD Chapters: 18-22

Time Frame: 18-19 days

Topics covered:

- Confidence intervals for one and two proportions
- Hypothesis testing for one and two proportions
- Type I and II errors and power

Unit VI: Inference for Means

BVD Chapters: 23-25

Time Frame: 8-9 days

Topics covered:

- Confidence intervals for one and two means (with t)
- Hypothesis testing for one and two means (with t)
- Confidence intervals and hypothesis testing for matched pairs means (with t)

Unit VII: Inference for Counts and Slope

BVD Chapters: 26-27

Time Frame: 6-7 days

Topics covered:

- Chi-square goodness-of-fit
- Chi-square for homogeneity and for independence
- Confidence interval for slope
- Hypothesis testing for slope
- ANOVA

Cumulative Project

Time Frame: 2-3 Days

- Cumulative projects